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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

HU, HENRY S

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 09/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n No.

10/031,635

Applicant(s)

NAKAHAMA ET AL

Examiner

Henry S. Hu

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-- Th MAILING DATE of this communication appears on the cover sheet with th correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☒ Claim(s) 1 and 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 June 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.5.9.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:
 - (a) On page 60 at lines 5, 10 and 15, there are two types of "B". Same problems shown on page 4 at lines 12 to page 5 at line 1 as well as on page 6 at lines 14-28. The examiner suggests using different symbols to distinguish these two non-related species. Otherwise, it may cause confusion to one having ordinary skill in the art.
 - (b) On page 12 at line 21, recitation of "1,4-cyclohexylen" should be changed to **"1,4-cyclohexylene"** since it relates to an alkylene group.
 - (c) On page 13 at line 23, recitation of "hexamethylsilazane" should be changed to **"hexamethyldisilazane"** since it relates to a derivative from disilazene compound.
 - (d) On page 18 at lines 10 and 12, two recitations of "diosulfide" should be changed to **"disulfide"** since both compounds relate to a derivative from disulfide compound.
 - (e) On page 18 at line 17, recitation of "Selenium" should be changed to **"selenium"** with a small letter since it relates to a derivative from selenium compound.

(f) On page 19 at line 23, recitation of “boll-like” should be changed to “**ball-like**” since it relates to the shape of a compound. Please see the correct wording used on page 21 at line 18 such as sheet-like, ribbon-like or ball-like.

Appropriate corrections for (a) - (f) are required.

Drawings

2. INFORMATION ON HOW TO EFFECT DRAWING CHANGES

2-1. Correction of Informalities -- 37 CFR 1.85

New corrected drawings must be filed with the changes incorporated therein. Identifying indicia, if provided, should include the title of the invention, inventor's name, and application number, or docket number (if any) if an application number has not been assigned to the application. If this information is provided, it must be placed on the front of each sheet and centered within the top margin. If corrected drawings are required in a Notice of Allowability (PTOL-37), the new drawings **MUST** be filed within the **THREE MONTH** shortened statutory period set for reply in the “Notice of Allowability.” Extensions of time may NOT be obtained under the provisions of 37 CFR 1.136 for filing the corrected drawings after the mailing of a Notice of Allowability. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

2-2. Corrections other than Informalities Noted by Draftsperson on form PTO-948.

All changes to the drawings, other than informalities noted by the Draftsperson, **MUST** be made in the same manner as above except that, normally, a highlighted (preferably red ink) sketch of the changes to be incorporated into the new drawings **MUST** be approved by the examiner before the application will be

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allowed. No changes will be permitted to be made, other than correction of informalities, unless the examiner has approved the proposed changes.

Timing of Corrections

Applicant is required to submit acceptable corrected drawings within the time period set in the Office action. See 37 CFR 1.185(a). Failure to take corrective action within the set (or extended) period will result in **ABANDONMENT** of the application.

A notice of draftsman's patent drawing review (Form 948) is attached; please make corrections on **item 3** (copy machine mark), **item 10** (poor line quality) and **item 12** (numbers, letters, and reference characters not oriented in the same direction).

Claim Objections

3. Claims 1 and 10 are objected to because of the following informalities:

(a) On **Claim 1 at lines 5, 9 and 19 as well as Claim 10 at lines 5, 9 and 19, there are two types of "B" in the same claim**. Please refer to the same problems on the specification objection (a). The examiner suggests using different symbols to distinguish these two non-related species. Otherwise, it may cause confusion to one having ordinary skill in the art.

(b) On **Claim 1 at line 5 and on Claim 10 at line 5, the use of "1.0 x 10⁻⁵ – 5.0 x 10⁻³ mol of alkoxysilane compound" is vague**. It is unclear that the actual amount of copolymer rubber is used from the statement of Claim 1 at line 1 and Claim 10 at line 1

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since only 100 weight parts is mentioned. The examiner suggests using the amounts relative to the copolymers used. Otherwise, it may cause confusion to one having ordinary skill in the art.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. *The limitation of parent Claim 1 of the present invention relates to a rubber composition for extrusion comprising (A) an ethylene / α -olefin having 3 to 12 carbon atoms / non-conjugated polyene copolymer rubber, (B) 30-300 phr of carbon black, and (C) $1.0 \times 10^{-5} - 5.0 \times 10^{-3}$ mole of an alkoxysilane compound having the specific formula (I). The other parent Claim 10 relates to the same rubber composition of Claim 1 but is useful for molding. See other limitations of dependent Claims 2-9 and 11-18.*

7. Claims 1-5, 8-9, 10-14 and 17-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Yatsuyanagi et al. (US 6,033,597).

Regarding the limitation of parent Claim 1, Yatsuyanagi et al. disclose a rubber composition comprising an ethylene-propylene-diene rubber such as **EPDM**, coupling agent such as **bis-[triethoxysilyl]-propyltetradulfide** or **3-mercaptopropyl-trimethoxy-silane** (column 7, lines 8 and 47-48 and 56), a polysiloxane containing specifically the claimed alkoxysilane group, and a filler such as **carbon black** (column

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8, line 5-14 and 47). Yatsuyanagi et al. further disclose the diene copolymer may be any diene-containing rubber generally contained in various rubber compositions (column 13, line 47-50). Yatsuyanagi et al. furthermore disclose the amount used for each component overlapping the claimed amount (column 13, line 56-65 and see also examples).

8. Regarding **Claim 2**, the diene copolymer may be any diene-containing rubber generally contained in various rubber compositions (column 13, line 47-50). Therefore, the limitations of Claim 2 regarding monomer content, iodine number and intrinsic viscosity are anticipated by Yatsuyanagi et al.

Regarding **Claims 3-5**, the **carbon black** included in Yatsuyanagi's compositions is used in the conventional amount and has been demonstrated on various **examples 1-3, 25, 27-31 and 36 (also see Tables II and V-VII)**.

Regarding **Claims 8 and 9**, Yatsuyanagi et al. disclose that the composition was pressed and vulcanized **in a mold at 160 °C for 20 minutes** to prepare articles including tire treads (column 1, line 14; column 30, line 27-30). The physical properties such as the low heat generation characteristic and the abrasion resistance (column 2, line 5-6), as demonstrated in **examples 61-93** as well as on **tables XI-XIV**, are conventional requirements for the claimed articles of Claims 8 and 9.

The remaining **Claims 10-14 and 17-18** relate to the same rubber composition of Claims 1-5 and 8-9 but are useful for molding. Therefore, Claims 10-14 and 17-18 are rejected with the same reason for the rejection of Claims 1-5 and 8-9.

9. Claims 1-5, 8-9, 10-14 and 17-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Thurn et al. (US 3,873, 489).

Regarding the limitation of parent **Claim 1**, Thurn et al. disclose a rubber composition comprising (A) an ethylene-propylene-diene rubber such as **EPDM** (column 7, line 20-25), (B) a sulfur-containing coupling agent such as **bis-[triethoxysilyl]-propyltetradulfide** (column 6, line 5-56) and **3-mercaptopropyl-trimethoxy-silane** (column 3, line 66; column 1, line 43), and (C) a filler such as **carbon black** (abstract, line 19; column 4, line 40). Thurn et al. further disclose the diene copolymers may be from any **non-conjugated diene or polyene** (column 7, line 20-25). Thurn et al. furthermore disclose the amount used for each component overlapping the claimed amount (column 13, line 56-65 and see also examples 1-12).

10. Regarding **Claim 2**, the diene copolymers may be from any **non-conjugated diene or polyene** such as norbornadiene or dicyclopentadiene (column 7, line 20-25). The limitations of Claim 2 regarding monomer content, iodine number and intrinsic viscosity are thereby anticipated by Thurn et al.

Regarding **Claims 3-5**, the **carbon black** included in Thurn's compositions is used in the conventional amount and has been specifically demonstrated on example 12 (see abstract, line 19; column 4, line 40; column 24, line 59).

Regarding **Claims 8 and 9**, Thurn et al. disclose that the production of rubber mixtures as well as molding and vulcanization is carried out according to customary procedure system of the rubber industry (column 7, line 69 – column 8, line 11). The physical properties for the articles such as cable insulation and hoses, which are disclosed on column 8 at lines 4-9, are conventional requirements for the claimed articles of **Claims 8 and 9**.

The remaining **Claims 10-14 and 17-18** relate to the same rubber composition of **Claims 1-5 and 8-9** but are useful for molding. Therefore, **Claims 10-14 and 17-18** are rejected with the same reason for the rejection of **Claims 1-5 and 8-9**.

11. **Claims 6-7 and 15-16** are rejected under 35 U.S.C. 102(e) or 102 (b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Yatsuyanagi et al. (US 6,033,597) or Thurn et al. (US 3,873, 489).

The discussion of the disclosures of the prior art of Yatsuyanagi or Thurn as applied to **Claims 1-5, 8-9, 10-14 and 17-18** of this office action is incorporated here by reference. The differences between the reference and **Claims 6-7 and 15-16** are that

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each of the references does not specifically disclose the apparent activation energy and change rate in rubber processing process.

Regarding Claims 6-7 and 15-16, the composition and its preparation method disclosed by Yatsuyanagi or Thurn in the above rejection are substantially the same as those specifically shown in **Applicants' Examples as well as its controls 1-24** (see pages 26-54). Although the **reference is silent of the apparent activation energy and change rate in rubber processing process**, in view of the substantial the same in the composition and its method the Examiner has a reasonable basis to believe that Yatsuyanagi or Thurn's rubber compositions inherently possess the same claimed process properties of present invention. Since PTO does not have proper means to conduct experiments, the burden of proof is now shifted to Applicants to show otherwise. *In re Best*, 195 USPQ 430 (CCPA 1977).

It has been held that where applicant claims a composition in terms of function, property or characteristic where said function is not explicitly shown by the reference and where the examiner has explained why the function, property or characteristic is considered inherent in the prior art, it is appropriate for the examiner to make a rejection under both the applicable section of 35 USC 102 and 35 USC 103 such that the burden is placed upon the applicant to provide clear evidence that the respective compositions do in fact differ. *In re Best*, 195 USPQ 430, 433 (CCPA 1977); *In re Fitzgerald et al.*, 205 USPQ 594, 596 (CCPA 1980).

Conclusion

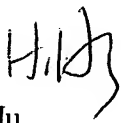
12. The prior art made of record and not relied upon is considered pertinent to applicants' disclosure. The following references relate to a rubber composition for

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extrusion comprising **ethylene / α -olefin having 3 to 12 carbon atoms / non-conjugated polyene copolymer rubber**, carbon black, and an alkoxysilane compound having the specific formula (I):

US Patent No. **5,387,664 to Kawasaki et al.** disclose the preparation of a rubber composition comprising an ethylene / α -olefin / non-conjugated polyene copolymer rubber and silica filler (title; abstract, line 1-6; column 5, line 1-38). The claimed properties of iodine number and Mooney viscosity on diene copolymers were disclosed on various examples. However, Kawasaki et al. fail to teach including in the rubber composition an alkoxysilane compound having the **specific formula (1) or (2)** as well as a **polysiloxane** having an alkoxysilyl endgroup.

13. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Henry S. Hu whose telephone number is (703) 305-4918. The examiner can be reached on Monday through Friday from 9:00 AM –5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on (703) 308-2450. The fax number for the organization where this application or proceeding is assigned is (703) 746-9051. Any inquiry of general nature or relating to the status of this application or proceeding should be directed to the group receptionist whose telephone number is (703) 308-0661.



Henry S. Hu

September 6, 2003



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